Geophysical Research Abstracts
Vol. 15, EGU2013-6719, 2013
EGU General Assembly 2013

Air-sea exchange over Black Sea estimated from high resolution regional climate simulations

Liliana Velea, Roxana Bojariu, and Roxana Cica
National Meteorological Administration, Climate Section, Bucharest, Romania (liliana.velea@meteoromania.ro)

Black Sea is an important influencing factor for the climate of bordering countries, showing cyclogenetic activity (Trigo et al, 1999) and influencing Mediterranean cyclones passing over. As for other seas, standard observations of the atmosphere are limited in time and space and available observation-based estimations of air-sea exchange terms present quite large ranges of uncertainty. The reanalysis datasets (e.g. ERA produced by ECMWF) provide promising validation estimates of climatic characteristics against the ones in available climatic data (Schrum et al, 2001), while cannot reproduce some local features due to relatively coarse horizontal resolution. Detailed and realistic information on smaller-scale processes are foreseen to be provided by regional climate models, due to continuous improvements of physical parameterizations and numerical solutions and thus affording simulations at high spatial resolution.
The aim of the study is to assess the potential of three regional climate models in reproducing known climatological characteristics of air-sea exchange over Black Sea, as well as to explore the added value of the model compared to the input (reanalysis) data. We employ results of long-term (1961-2000) simulations performed within ENSEMBLE project (http://ensemblesrt3.dmi.dk/) using models ETHZ-CLM, CNRM-ALADIN, METO-HadCM, for which the integration domain covers the whole area of interest. The analysis is performed for the entire basin for several variables entering the heat and water budget terms and available as direct output from the models, at seasonal and annual scale. A comparison with independent data (ERA-INTERIM) and findings from other studies (e.g. Schrum et al, 2001) is also presented.

References:
Schrum, C., Staneva, J., Stanev, E. and Ozsoy, E., 2001: Air-sea exchange in the Black Sea estimated from atmospheric analysis for the period 1979-1993, J. Marine Systems, 31, 3-19
Trigo, I. F., T. D. Davies, and G. R. Bigg (1999): Objective climatology of cyclones in the Mediterranean region. J. Climate, 12, 1685– 169